SF/AR
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

Reply To
Attn Of: ECL-117

MEMORANDUM

SUBJECT: Bunker Hill Mine Presumptive Remedy

FROM: Nick Ceto Nick
Regional Mining Coordinator

TO: Mary Kay Voytilla
Remedial Project Manager

DATE: March 4, 1999

Thanks for the opportunity to attend the Bunker Hill meeting earlier this week. I am glad to see work progressing on developing a long-term strategy for dealing with water from the Bunker Hill Mine. This memo summarizes several suggestions that you might consider as the project moves forward.

I think that efforts to control recharge of the mine by directing surface and shallow ground water around areas vulnerable to infiltration are appropriate. Diversions proposed in the Milo and Deadwood Creek drainages are good candidates for controlling mine recharge. I would encourage you to install these measures as soon as possible in order to have a better understanding of long term mine water quality and quantity prior to designing a treatment system.

On a parallel track I would encourage you to undertake an optimization study intended to evaluate utilization of the deeper portions of the mine (level 10 and below) for storage of peak mine drainage flows, and as an area to hold water during critical low flow periods in the Coeur d'Alene River. If the current average annual flow from the mine is 1500 gpm you may be able to design a treatment system that is considerably less than the 5000 gpm capacity discussed at the meeting if you can use the mine to attenuate high flows. In fact, if peak flows can be controlled, and efforts to control infiltration into the mine are successful, you may be able to design a treatment system of less than 1500 gpm capacity. If greater capacity is needed in the future to support an expanded mining operation adding that additional capacity should be the responsibility of the mine operator. 114280

With regard to selection of an appropriate treatment technology I would encourage you to focus your efforts on conventional technologies such as iron co-precipitation and sulfide precipitation rather than the more exotic and expensive technologies. I understand that the TMDL for the Coeur d'Alene will take into account practicable treatment technologies in assigning loads to existing mines in the Basin, Bunker Hill should get the same treatment. If conventional treatment technologies cannot meet water quality based limits during certain river flows I would urge you to consider storage, or land application options. Land application can be a viable option if carefully designed and implemented.

Another factor which should be considered in you analysis is the location of the outfall for the mine drainage. There may be benefits in piping the discharge to the confluence of the SFCDR and Pine Creek if a larger mixing zone would be available to meet in-stream water quality goals.

Finally, although it was not discussed at the meeting, there may be some work that can be done in the mine to improve water quality before water reaches the end of the Kellogg tunnel. I think Mr. Hopper was doing some work in that regard a few years ago, this may be worth pursuing.

Thanks again for the opportunity to provide you with my suggestions.